

Jeff Gruber
Final Finish, LLC
1601 W. Hively Avenue
Elkhart, Indiana 46517

Re: Registered Operation Status,
039-14768-00559

Dear Mr. Gruber:

The application from Final Finish, LLC, received on August 14, 2001, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that the following emission units, to be located at 1601 W. Hively Avenue, Elkhart, Indiana, are classified as registered:

- (a) One (1) spray booth, identified as SB-1, with a maximum capacity of 181.32 pounds per hour, equipped with dry filters, with a control efficiency of 90%.
- (b) Ten (10) radiant heaters, identified as H1 through H10, each with a maximum heat input rate of 0.08 MMBTU per hour.
- (c) One (1) air make-up unit, identified as H11, with a maximum heat input rate of 2.2 MMBTU per hour .
- (d) A sanding system, with a maximum capacity of 307.44 pounds per hour, equipped with a cyclone with baghouse, with a control efficiency of 99%.

The following conditions shall be applicable:

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

Pursuant to 326 IAC 6-3-2 (Process Operations):

The particulate matter (PM) from the emission units shall be limited by the following equation:

$$E=4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The PM emission from the sander shall be limited to 1.17 pounds per hour based on a process weight rate of 307.4 pounds per hour. The PM emissions from the surface coating unit shall be limited to 0.82 pounds per hour, based on a process weight rate of 181.32 pounds per hour.

The dry filters and baghouse shall be in operation at all times the source is in operation, in order to comply with this limit.

Pursuant to 326 IAC 2-6 (Emission Reporting):

The owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

This registration is the first air approval issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.1-2(f)(3). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

mm

cc: File - Elkhart County
Elkhart County Health Department
Air Compliance - Paul Karkiewicz
Northern Regional Office
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3)

Company Name: Final Finish, LLC
Address: 1601 W. Hively Avenue
City: Elkhart, IN 46517
Authorized individual:
Phone #:
Registration #: 039-14768-00559

I hereby certify that Final Finish, LLC is still in operation and is in compliance with the requirements of Registration 039-14768-00559.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Final Finish, LLC
Source Location: 1601 W. Hively Avenue, Elkhart, IN 46517
County: Elkhart
SIC Code: 2431
Operation Permit No.: 039-14768-00559
Permit Reviewer: Madhurima D. Moulik

The Office of Air Quality (OAQ) has reviewed an application from Final Finish, LLC, relating to the operation of a plant producing custom finished wood door and building trim products.

Emission Units and Pollution Control Equipment

The source consists of the following emission units and pollution control devices:

- (a) One (1) spray booth, identified as SB-1, with a maximum capacity of 181.32 pounds per hour, equipped with dry filters, with a control efficiency of 90%.
- (b) Ten (10) radiant heaters, identified as H1 through H10, each with a maximum heat input rate of 0.08 MMBTU per hour.
- (c) One (1) air make-up unit, identified as H11, with a maximum heat input of 2.2 MMBTU/hr.
- (d) A sanding system, with a maximum capacity of 307.44 pounds per hour, equipped with a cyclone with a baghouse, having a control efficiency of 99%.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S-1	Spray Booth	22	2.83	18,280	Ambient

Enforcement Issue

IDEM is aware that all equipment at this source has been constructed in 1980 and operated without a proper permit. The enforcement branch at IDEM shall review this matter and take appropriate action. This proposed permit is intended to satisfy the requirements of the operation permit rules.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on August 14, 2001. Additional information was received on September 4, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Pages 1-8).

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	21.77
PM-10	3.59
SO ₂	0
VOC	19.93
CO	1.10
NO _x	1.30

HAP's	Potential To Emit (tons/year) ¹
Xylene	3.60
Toluene	4.47
Methyl Ethyl Ketone	1.75
Formaldehyde	0.81
TOTAL	12.4

¹ The HAPs with highest PTEs are listed.

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all criteria pollutants are less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of combination HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (c) The potential to emit (as defined in 326 IAC 2-7-1 (29)) of PM is less than twenty five (25) tons per year but greater than five (5) tons. Therefore, the source is subject to the provisions of 326 IAC 2-5.

County Attainment Status

The source is located in Elkhart County.

Pollutant	Status
PM-10	Attainment
SO ₂	Attainment
NO ₂	Attainment
Ozone	Maintenance
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Elkhart County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Elkhart County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	0.47
PM10	0.27
SO ₂	0
VOC	19.93
CO	1.10
NO _x	1.30
Single HAP	4.47
Combination HAPs	12.4

This new source is not a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater, no nonattainment pollutant is emitted at a rate of 100 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2 and 2-3, and 40 CFR 52.21, the PSD and Emission Offset requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Part 63) Subpart JJ. Wood furniture is defined as "any product made of wood, a wood product such as rattan or wicker, or an engineered wood product such as particleboard that is manufactured under any of the standard industrial classification codes: 2434, 2511, 2512, 2517, 2519, 2521, 2531, 2541, 2599, or 5712" in 40CFR 63.801. Door manufacturing is listed in SIC 2431 which is not listed in this definition. Therefore this operation is not wood furniture manufacturing and Subpart JJ does not apply.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Elkhart county and has the potential to emit more than ten (10) tons per year of VOC. Therefore, this source is subject to 326 IAC 2-6 (Emission Reporting). Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 8-1-6 (General provisions relating to VOC rules: general reduction requirements for new facilities)

This rule does not apply because the potential VOC emission from this source is less than 25 tons per year.

326 IAC 2-4.1 (HAPs major sources: new sources toxics control)

This source has the potential to emit less than 10 tons per year of any single HAP, and less than 25 tons per year of combination HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the sander and surface coating booth shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The PM emission from the sander, with a maximum process weight rate of 307.4 pounds per hour, shall be limited to 1.17 pounds per hour. The PM emissions from the surface coating operation, with a maximum process weight rate of 181.32 pounds per hour, shall be limited to 0.82 pounds per hour.

The dry filters and baghouse shall be in operation at all times the source is in operation, in order to comply with this limit.

326 IAC 8-2-12 (Surface coating emission limitations: wood furniture and cabinet coating)

This rule applies to "surface coated wood furnishings which include cabinets (kitchen, bath and vanity), tables, beds, chairs, sofas (non-upholstered), art objects, and any other coated furnishings made of solid wood, wood composition or simulated wood material". The dictionary also defines furnishings as "an article of furniture for the interior of a building". Based on these definitions, the custom door work and building trim work do not meet the definition of wood furnishings. Therefore, 326 IAC 8-2-12 does not apply.

Conclusion

The operation of this wood sanding and surface coating facility shall be subject to the conditions of the attached proposed Registration 039-14768-00559.

Appendix A: Emissions Calculations

**VOC and Particulate
From Surface Coating Operations
Process 2 (Primer+Paint)**

Company Name: Final Finish, LLC
Address City IN Zip: 1601 Hively Avenue, Elkhart, IN 46517
CP: 039-14768
Pit ID: 039 00559
Reviewer: Madhurima D. Moulik
Date: August 27, 2001

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	Transfer Efficiency
Paint-New siding tan	7.8	78.80%	0.1%	78.7%	0.0%	0.00119	186.670	6.13	6.13	1.36	32.68	5.96	0.32	80%
Paint-Blue	7.7	80.70%	0.0%	80.7%	0.0%	0.00119	186.670	6.23	6.23	1.38	33.21	6.06	0.29	80%
Paint-Door Green	7.7	81.75%	0.0%	81.8%	0.0%	0.00119	186.670	6.29	6.29	1.40	33.56	6.12	0.27	80%
Paint-Door red	7.8	79.30%	0.0%	79.3%	0.0%	0.00119	186.670	6.17	6.17	1.37	32.89	6.00	0.31	80%
Primer-acrylic lacquer	10.5	43.84%	0.0%	43.8%	0.0%	0.00119	186.670	4.59	4.59	1.02	24.47	4.47	1.14	80%
Cleaner-pure grade lacquer	7.1	100.00%	0.0%	100.0%	0.0%	1.00000	0.027	7.08	7.08	0.19	4.59	0.84	0.00	100%

Potential to Emit (tpy) =

11.43 1.47

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

Appendix A: Emission Calculations

**HAP Emission Calculations
From Surface Coating Operation
Process 2 (Primer + Paint)**

**Company Name: Final Finish LLC
Address City IN Zip: 1601 W. Hively Avenue, Elkhart, IN 46517
CP ID: 039-14768
Plt ID: 039-00559
Permit Reviewer: Madhurima D. Moulik
Date: August 27, 2001**

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Xylene	Weight % Toluene	Weight % Formaldehyde	Weight % EthylBenzene	Weight % Methanol	Xylene Emissions (ton/yr)	Toluene Emissions (ton/yr)	Formaldehyde Emissions (ton/yr)	EthylBenzene Emissions (ton/yr)	Methanol Emissions (ton/yr)
Paint New siding tan	7.8	0.00119	186.67	0.90%	26.00%	0.00%	0.90%	0.90%	0.07	1.97	0.00	0.07	0.07
Paint Blue	7.7	0.00119	186.67	0.90%	25.00%	0.00%	0.90%	0.00%	0.07	1.87	0.00	0.07	0.00
Paint Door green	7.7	0.00119	186.67	0.90%	27.00%	0.00%	0.90%	0.90%	0.07	2.02	0.00	0.07	0.07
Paint Door red	7.8	0.00119	186.67	0.90%	25.00%	0.00%	0.90%	0.00%	0.07	1.90	0.00	0.07	0.00
Primer-Acrylic lacquer	10.5	0.00119	186.67	0.00%	24.00%	0.00%	0.00%	0.00%	0.00	2.45	0.00	0.00	0.00
Cleaner-pure lacquer	7.1	1.00000	0.03	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00

Potential to Emit (tpy) =

0.07	4.47	0.00	0.07	0.07
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Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Methyl Isobutyl Ketone	Weight % Methyl Ethyl Ketone	Weight % Ethylene Glycol Monobutyl Ether	Weight % Cumene	Methyl Isobutyl Ketone Emissions (ton/yr)	Methyl Ethyl Ketone Emissions (ton/yr)	Ethylene Glycol Monobutyl Ether Emissions (ton/yr)	Cumene Emissions (ton/yr)
Paint New siding tan	7.8	0.00119	186.67	6.00%	23.00%	0.00%	0.00%	0.46	1.75	0.00	0.00
Paint Blue	7.7	0.00119	186.67	6.00%	23.00%	0.00%	0.00%	0.45	1.72	0.00	0.00
Paint Door green	7.7	0.00119	186.67	5.00%	19.00%	0.00%	0.00%	0.37	1.42	0.00	0.00
Paint Door red	7.8	0.00119	186.67	6.00%	23.00%	0.00%	0.00%	0.46	1.75	0.00	0.00
Primer-Acrylic lacquer	10.5	0.00119	186.67	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Cleaner-pure lacquer	7.1	1.00000	0.03	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00

Potential to Emit (tpy) =

0.46	1.75	0.00	0.00
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Potential to Emit of Combination HAPs (tpy) =

6.88

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

**Appendix A: Emissions Calculations
VOC and Particulate
From Surface Coating Operation
Process 3 (Stain+sealer+topcoat)**

**Company Name: Final Finish, LLC
Address City IN Zip: 1601 Hively Avenue, Elkhart, IN 46517
CP: 039-14768
Plt ID: 039-00559
Reviewer: Madhurima D. Moulik
Date: August 27, 2001**

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	Transfer Efficiency
Stain-standard dark oak	7.6	89.80%	0.0%	89.8%	0.0%	0.00%	0.00169	131.413	6.81	6.81	1.51	36.30	6.63	0.00	100%
Stain-dark cherry	7.5	88.50%	0.9%	87.6%	0.8%	0.00%	0.00169	131.413	6.62	6.57	1.46	35.04	6.39	0.17	80%
Stain-medium oak	7.3	93.70%	1.0%	92.7%	0.9%	0.00%	0.00169	131.413	6.82	6.76	1.50	36.05	6.58	0.00	100%
Stain- cherry	7.5	90.90%	0.0%	90.9%	0.0%	0.00%	0.00169	131.413	6.78	6.78	1.51	36.16	6.60	0.13	80%
Stain-medium cherry	7.2	95.90%	0.5%	95.4%	0.4%	0.00%	0.00169	131.413	6.93	6.90	1.53	36.80	6.72	0.06	80%
Stain-med oak and mapl	7.3	94.20%	1.0%	93.2%	0.9%	0.00%	0.00169	131.413	6.84	6.78	1.51	36.14	6.59	0.08	80%
Vinyl sealer	7.4	75.60%	0.0%	75.6%	0.0%	0.00%	0.00169	131.413	5.59	5.59	1.24	29.84	5.45	0.35	80%
Topcoat varnish	7.9	64.60%	0.0%	64.6%	0.0%	0.00%	0.00233	131.413	5.10	5.10	1.56	37.42	6.83	0.75	80%
Cleaner	7.1	100.00%	0.0%	100.0%	0.0%	0.00%	1.00000	0.027	7.08	7.08	0.19	4.59	0.84	0.00	100%

Potential to Emit (tpy) =

19.83	1.27
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METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

Appendix A: Emission Calculations
HAP Emission Calculations
From Surface Coating Operation
Process 3 (Stain+sealer+topcoat+cleaner)

Page 4 of 8 039-14768-00559

Company Name: Final Finish LLC
Address City IN Zip: 1601 W. Hively Avenue, Elkhart, IN 46517
CP ID: 039-14768
Pit ID: 039-00559
Permit Reviewer: Madhurima D. Moulik
Date: August 28, 2001

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Xylene	Weight % Toluene	Weight % Formaldehyde	Weight % EthylBenzene	Weight % Methanol	Xylene Emissions (ton/yr)	Toluene Emissions (ton/yr)	Formaldehyde Emissions (ton/yr)	EthylBenzene Emissions (ton/yr)	Methanol Emissions (ton/yr)
Stain-Dark oak wipe	7.6	0.00169	131.41	43.00%	0.00%	0.00%	0.00%	5.00%	3.18	0.00	0.00	0.00	0.37
Stain-Dark cherry	7.5	0.00169	131.41	39.00%	0.00%	9.40%	0.90%	4.00%	2.85	0.00	0.69	0.07	0.29
Stain-Med oak wipe	7.3	0.00169	131.41	43.00%	7.00%	0.90%	0.90%	5.00%	3.05	0.50	0.06	0.06	0.36
Stain-Cherry	7.5	0.00169	131.41	42.00%	0.00%	0.00%	0.90%	5.00%	3.06	0.00	0.00	0.07	0.36
Stain-Medium cherry	7.2	0.00169	131.41	46.00%	0.00%	0.90%	0.90%	5.00%	3.22	0.00	0.06	0.06	0.35
Stain-Med oak maple	7.3	0.00169	131.41	44.00%	0.00%	0.90%	0.00%	5.00%	3.12	0.00	0.06	0.00	0.36
Sealer	7.4	0.00169	131.41	4.00%	2.00%	0.40%	0.00%	0.00%	0.29	0.14	0.03	0.00	0.00
Topcoat	7.9	0.00233	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00
Cleaner-pure lacquer	7.1	1.00000	1.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00
Precatalyst	7.54	0.00233	131.41	0.90%	0.90%	0.90%	0.90%	0.00%	0.09	0.09	0.09	0.09	0.00

Potential to Emit (tpy) = **3.60** **0.73** **0.81** **0.16** **0.37**

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Methyl Isobutyl Ketone	Weight % Methyl Ethyl Ketone	Weight % Ethylene Glycol Monobutyl Ether	Weight % Cumene	Methyl Isobutyl Ketone Emissions (ton/yr)	Methyl Ethyl Ketone Emissions (ton/yr)	Ethylene Glycol Monobutyl Ether Emissions (ton/yr)	Cumene Emissions (ton/yr)
Stain-Dark oak wipe	7.6	0.00169	131.41	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Stain-Dark cherry	7.5	0.00169	131.41	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Stain-Med oak wipe	7.3	0.00169	131.41	2.00%	0.00%	0.00%	0.00%	0.14	0.00	0.00	0.00
Stain-Cherry	7.5	0.00169	131.41	0.00%	0.00%	0.00%	0.90%	0.00	0.00	0.00	0.07
Stain-Medium cherry	7.2	0.00169	131.41	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Stain-Med oak maple	7.3	0.00169	131.41	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Sealer	7.4	0.00169	131.41	0.00%	6.00%	0.00%	0.00%	0.00	0.43	0.00	0.00
Topcoat	7.9	0.00233	131.41	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Cleaner-pure lacquer	7.1	1.00000	1.00	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00
Precatalyst	7.54	0.00233	131.41	0.00%	0.00%	7.00%	0.00%	0.00	0.00	0.71	0.00

Potential to Emit (tpy) = **0.14** **0.43** **0.71** **0.07**

Potential to Emit of Combination HAPs (tpy) = **7.01**

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Space Heater

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Company Name: Final Finish, LLC
Address City IN Zip: 1601 Hively Avenue, Elkhart, IN 46517
CP: 039-14768
Plt ID: 039-00559
Reviewer: Madhurima D. Moulik
Date: August 28, 2001

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

3.0

26.3

Pollutant						
Emission Factor in lb/MMCF	PM*	PM10*	SO2	NOx	VOC	CO
	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.1	0.0	1.3	0.1	1.1

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Space Heater
HAPs Emissions

Page 6 of 8 039-14768-00559 TSD App A

Company Name: Final Finish, LLC
Address City IN Zip: 1601 Hively Avenue, Elkhart, IN 46517
CP: 039-14768
Plt ID: 039-00559
Reviewer: Madhurima D. Moulik
Date: August 28, 2001

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	2.759E-05	1.577E-05	9.855E-04	2.365E-02	4.468E-05

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	6.570E-06	1.445E-05	1.840E-05	4.993E-06	2.759E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Appendix A: Emissions Calculation
Particulate Matter Emissions from Sander

Company Name: Final Finish, LLC
Address, City, State, Zip: 1601 Hively Avenue, Elkhart, IN 46517
CP: 039-14768
Plt. ID: 039-00559
Reviewer: Madhurima D. Moulik
Date: August 28, 2001

For Sander:

Assume:

Sawdust = 15% of throughput
PM = 10% of sawdust
PM-10 = 10% of PM

Throughput = 307.44 lb/hr

Sawdust = $307.44 \text{ lb/hr} \times .15 = 46.12 \text{ lb/hr}$

PM Emissions = $46.12 \text{ lb/hr} \times .1 = 4.61 \text{ lb/hr} = 4.61 \text{ lb/hr} \times 8760 \text{ hr/yr} \times 1 \text{ ton}/2000\text{lb} = 20.2 \text{ tpy}$

PM-10 Emissions = $4.61 \text{ lb/hr} \times .1 = 0.46 \text{ lb/hr} = 0.46 \text{ lb/hr} \times 8760 \text{ hr/yr} \times 1\text{ton}/2000 \text{ lb} = 2.0 \text{ tpy}$

Appendix A: Emission Calculations
Total Emissions
Final Finish, LLC
Address City IN Zip: 1601 W. Hively Avenue, Elkhart, IN 46517
CP: 039-14768
Plt ID: 039-00559
Reviewer: Madhurima D. Moulik
Date: August 28, 2001

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Total Potential Emissions in Tons Per Year

	PM	PM-10	SO2	NOx	VOC	CO	HAPs								
							Xylene	Toluene	Formaldehy	Ethylbenzen	Methanol	Methyl Isobu Ketone	Methyl Ketone	Ethyl Glycol Ether	Cumene
Space Heater	0.10	0.10	0.00	1.30	0.10	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sander	20.20	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Coating-Primer+Paint	1.47	1.47	0.00	0.00	11.43	0.00	0.07	4.47	0.00	0.07	0.07	0.46	1.75	0.00	0.00
Surface Coating (stain, topcoat	1.27	1.27	0.00	0.00	19.83	0.00	3.60	0.73	0.81	0.16	0.37	0.14	0.43	0.71	0.07
Potential Emissions (tpy)	21.77	3.59	0.00	1.30	19.93	1.10	3.60	4.47	0.81	0.16	0.37	0.46	1.75	0.71	0.07

Combination
HAPs

Potential Emissions (tpy)	12.4
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Methodology:

There are two alternate surface coating operations at this source. The PTE is estimated by considering the worst case surface coating operation (Primer+Paint versus Stain, Sealer, Topcoat finish).